

MATERIAL SAFETY DATA SHEET

National Institute of Standards and Technology
Standard Reference Materials Program
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SRM Number: 3001
MSDS Number: 3001
SRM Name: Toluene in Methanol

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SECTION I. MATERIAL IDENTIFICATION

Material Name: Toluene in Methanol

Description: SRM 3001 consists of two 5-milliliter sealed borosilicate glass ampoules containing approximately 2.5 mL of a solution of toluene in methanol.

Other Designations: **Toluene** (methylbenzene; 1-methylbenzene; methylbenzol; phenylmethane; toluol; methyl benzene; toulene) in **Methanol** (methyl alcohol; wood alcohol; methyl hydroxide; carbinol; monohydroxymethane; wood spirit; wood naphtha; methylol)

Name	Chemical Formula	CAS Registry Number
Methanol	CH ₃ OH	67-56-1
Toluene	C ₆ H ₅ CH ₃	108-88-3

DOT Classification: Methanol; UN1230; Packing Group II; Hazard Class 3.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Methanol	99	OSHA TWA: 260 mg/m ³ (200 ppm)
		NIOSH recommended TWA (skin): 260 mg/m ³ (200 ppm) (10 h)
		NIOSH recommended STEL (skin): 325 mg/m ³ (250 ppm)
		OES, UK TWA (skin): 266 mg/m ³ (200 ppm)
		OES, UK STEL (skin): 333 mg/m ³ (250 ppm)
		Human, Inhalation TC _{LO} : 86 000 mg/m ³
		Human, Oral LD _{LO} : 143 mg/kg
		Man, Oral TD _{LO} : 3 429 mg/kg
Toluene	1	ACGIH TWA (skin): 50 ppm
		OSHA -TWA: 200 ppm
		OSHA ceiling: 300 ppm
		UK OES TWA (skin): 191 mg/m ³ (50 ppm)
		UK OES STEL (skin): 574 mg/m ³ (150 ppm)
		Man, Oral LD _{LO} : 719 µL/kg
		Human, Inhalation TC _{LO} : 200 ppm
		Rat, Oral LD ₅₀ : 636 mg/kg

Conditions to Avoid: Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combustion by-products. Keep out of water supplies and sewers.

Incompatibility (Materials to Avoid): This material is incompatible with halo carbons, combustible materials, metals, oxidizing materials, halogens, metal carbide, amines, acids, and bases.

See Section IV: "Unusual Fire and Explosion Hazards".

Hazardous Decomposition or Byproducts: Thermal decomposition products may include toxic oxides of carbon and hydrocarbons.

Hazardous Polymerization: ___ Will Occur X Will Not Occur

SECTION VI. HEALTH HAZARD DATA

Route of Entry: X Inhalation X Skin X Ingestion

Methanol: Methanol is a skin and eye irritant and can cause nerve damage. This material is harmful if inhaled or absorbed through skin. Ingestion may be fatal or cause blindness. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause damage to the eyes, liver, heart, and kidneys. Methanol may also cause gastrointestinal disturbances and convulsions.

Toluene: This material may be harmful by inhalation, ingestion, or skin absorption. Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract. Contact with liquid may cause skin irritation. Vapors may cause drying of the skin. Aspiration into the lungs may be fatal. Symptoms may include burning sensation in the epigastrium, coughing, difficulty breathing, abdominal spasms, and pulmonary edema.

Target Organs of Attack: Nervous system for methanol and toluene.

Medical Conditions Generally Aggravated by Exposure: Methanol may cause eye disorders, kidney disorders, skin disorders, and allergies.

Listed as a Carcinogen/Potential Carcinogen (Methanol):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	<u>X</u>
In the International Agency for Research on Cancer (IARC) Monographs	_____	<u>X</u>
By the Occupational Safety and Health Administration (OSHA)	_____	<u>X</u>

Listed as a Carcinogen/Potential Carcinogen (Toluene):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	<u>X</u>
In the International Agency for Research on Cancer (IARC) Monographs	_____	<u>X</u>
By the Occupational Safety and Health Administration (OSHA)	_____	<u>X</u>

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration by qualified personnel. Obtain medical assistance.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Avoid heat, flames, sparks, and other sources of ignition. Stop the leak if one can do so without risk. Stop the leak if one can do so without risk. Absorb small spills with sand or other absorbent material and place into containers for disposal.

Waste Disposal: Follow all federal, state, and local laws governing disposal. Methanol is subject to disposal regulations U.S. EPA 40 CFR 262, Hazardous Waste Number U154. Keep Toluene out of sewers and water supplies. Toluene is subject to disposal regulations U.S. EPA 40 CFR 262, Hazardous Waste Number U220.

Handling and Storage: Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material. Methanol is subject to storage regulations U.S. OSHA 29 CFR 1910.106. Keep separated from incompatible substances.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

This material should be stored in the dark at temperatures lower between 10 °C and 30 °C in a cool, dry, well-ventilated area away from incompatible materials and conditions. Protect containers from physical damage.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Toluene*, 16 September 2004.
MDL Information Systems, Inc., MSDS *Methyl Alcohol*, 16 September 2004.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified value for this material is given in the NIST Certificate of Analysis.